RU Staying Proposal

Software Engineering
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By Group #11
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Github: https://github.com/mohammedsapin/RUStaying

Problem diagnosis:

With the increase of self-service technology, advancements have been made to benefit humans and make services more efficient. This technology has been implemented in various service industries already, such as restaurants, parking garages and stores. The automated software provides many benefits to both the user and administrator while making the processes more efficient. We noticed a lack of self-service technology advancement in the hotel industry, and therefore, a significant need for automation. Our project would comfortably provide users with all of the services that a hotel staff provides through a single app, furthermore allowing the user to control all aspects of their hotel stay from check in to check out. All hotel employees are assigned to tasks depending on the customers' needs.

After a long flight, people are usually tired and impatient when waiting in line to check in at the front desk of a hotel while the staff is helping other guests. Our project eliminates the need to wait, and allow attendees to conveniently access all of their hotel needs. Consequently, with a mobile guest engagement solution, guests will be able to have an immediate response to any needs or problems that need to be resolved. This also bypasses a common problem of not having readily available staff at all hours of the day or night. An automated system for the services of a hotel provides users with all the functionality at their fingertips. Not only will guest experience be improved within the hotel, but also the operational efficiency of the hotel itself will also see a marked improvement. It should be noted that there has been some degree of hesitation towards implementing automation within the hotel industry following previous failed attempts. However, according to a Cognizant survey, "Over half of U.S. travelers want more automation in hotels. This includes using their mobile device to check in (54%), open their door (50%), communicate with staff (49%), and check out (57%)." Evidently, there is a demand for an increase of technological use within hotels. However, as demonstrated by the multitude of poorly reviewed hotel automation applications on app stores across the internet, there has not been an accessible platform that is both easy for guests to use and also fully functional. Our project's focus is to create a functional and uncomplicated app that guarantees guests and staff an unproblematic and timely experience.

Proposed Solution:

Our solution to this problem is RU Staying, a mobile app that provides all hotel services to customers at their convenience, as well as other useful information including recreational room occupancies, and tourism advice. Below, we have listed various features that the app will implement:

Functional Features (For Guests)

Check In Module:

- Remote check-in
    - Guests can check-in for their rooms upon arrival at the hotel.
    - For security reasons, we will validate the guest through SMS code. The guests will be texted a code that they enter in the app to confirm.

- Booking a room
    - Our app offers the user an interface for available rooms and corresponding prices. User can easily make a reservation for their stay through the app
    - RU Staying also allows guests to specify any amenities they want, which includes the number of bedrooms, type of beds, and additional blankets or pillows. This will be all prepared by the hotel staff prior to the guests arrival.
- Luggage
    - Guests have the option to specify how much luggage they are carrying with them and request bellboy services to help them carry it up to their rooms.

Guest Services Module:

- Maid/Cleaning Service
    - Guests currently occupying a room will be able to notify maids and custodian staff of the best times to clean their rooms
    - Users will also be able to request additional toiletries such as soap and towels, as well as blankets and pillows.
- Maintenance Request
    - Guests can fill out maintenance request forms to report any issues they may be facing and wish to be fixed. Depending on the severity of the issue, and if a room is available, guests will be relocated to a vacant room for the rest of the duration of their stay.
- Feedback Form
    - At the end of each stay guests have the option to fill out a general feedback form with open ended responses to let the hotel know what they can do better in the future
    - This data will be stored and make available for the admins
- Car Service
    - Guests can request taxi services from verified taxi companies to take from the airport directly to the hotel
    - If guests are driving themselves, they can also request valet services
- Concierge service
    - A simple automated concierge service within the application will quickly provide answers to any general questions guests might have pertaining to anything from hotel policies to tourist information

Additional Amenities Module:

- Room Service
    - Guests can request food made in the hotel to be delivered directly to their room, and be informed how long it will take.
- Key access/fingerprints or something
    - Upon arrival and after their hotel check-in has been confirmed, the guests will receive an electronic key for their room.

- Occupancy Checks
    - Guests can also check the number of people at hotel provided services, such as the gym, pool, spa etc.
    - Guests will have to use their access key to enter these rooms and that way we can track the number of people
- Additional hotel information and frequently asked questions will also be readily available
    - Front Desk Hours
    - Room Service Hours
    - Breakfast Hours
    - Internet/Wifi Information
    - Extra Bedding Policy
    - Alcohol Policy
    - Connecting Room Policy
    - Deposit Policy
    - Early Departure Policy
    - Package Handling Policy
    - Pet Policy
    - Smoking Policy
    - Telephone Policy

Functional Features (For Admin)

Administrator Services Module
The app will also have an interface for a manager account where the guest data is tracked and presented. This allows manager to have control over staff members and keep track of hotel logistics.

- Room Logistics
    - The admin will be able to see exactly which rooms are currently occupied, which rooms have reservations and which rooms are available.
- Staff Control
    - Because the guest data is being tracked, we can determine how busy the hotel will be and plan accordingly for how much staff is needed.
    - There will also be an employee portal for managing shifts
    - We will also take into considering peak times and slow times of the year
- Guest Communication
    - The admin will have the information for all the guests and an easy way to communicate with them through the app

App Usage

We researched the main features and services of a hotel and examined which parts could be automated for more convenience to the guest. The features listed above cover the main aspects of a hotel and we believe the guest will have a very pleasant stay because of our app.

To provide the best service at our hotel, we highly encourage each of our guests to use RU Staying. Of course not all guests will use the app but we will still need to provide the same conveniences for those users. Even though our app automates the hotel system, we will still have staff members present at the hotel for various tasks. The guests who do not use the app, will interact with our staff members in the hotel there for all their needs. This presents an issue because the data from the guest that does not use the app is not report in the app and will not be tracked. It is still necessary for the admin to keep track of this data though. Our solution to this issue is to have the hotel staff manually input the data in the app. For example, if someone comes to the hotel and asks for a room, the concierge will check our app for available rooms and provide the user with a room. This will be done by creating a new account on our app by the concierge for the guest and use that account to book the room. This way, our app can still track the data for this guest throughout their stay. If the guest requests room services, the hotel staff will have to manually input that into the app also. This is done for the services we provide through the app and allows proper data management and tracking. Although this system is in place, we expect most guests to use the app.

Evaluating Success

RU Staying has a lot of potential with a lot of features. The success of this app will be determined by quality of the solution we provide to having an automated hotel system. The app will be more convenient and more efficient for both guests and managers. The data collected can also be analyzed to provide suggestions on how many staff members are needed in a given period of time. After enough data has been collected, we will also be able to track specific hours, seasons and times of the year that the hotel is busy or slow. This allows the admin to efficiently hire employees and schedule works shifts to best accommodate the guests, while increasing efficiency.
The app is created with the goal of providing our guests with the most convenient stay. The feedback features will allow guests to evaluate the hotel service and determine if we provided what we promised. Based on feedback, we can enhance future hotel service and app features.

Business Value

Booking a hotel room can be done directly through the hotel service or through intermediate “room-booking” websites such as Kayak and Expedia. Guests at our hotel can book through either method and still have access to the app, which is the main value of the business. From a customer’s perspective, they will gain ease-of-access to all the services that the hotel provides. From the admin perspective, the app allows better control of staff and services needed while collecting useful data from the guests and gives them a visual on everything happening at the hotel at the convenience of their fingertips. This data is then used to better improve the efficiency of the hotel, which in turn saves money and provides a better experience for the guest.

Data Collection

Check In Module: For the check-in module data will be collected when users create a new account. When making a reservation we will have a database that is updated for vacant rooms. When users make a reservation and check in this database will be updated and notify the admin.

Guest Services Module: The data will be collected by the user when they input when they need services, how many bags they have to be taken to their room, when they need their room cleaned, maintenance, etc. This updates into the database and allows the admin to know what staff to send in to assist the user.

Additional Amenities Module: The data will be take from both the user and admin. The admin will input what amenities are offered and limit a number of people that can use that specific amenity at a time. When the user wants to use any of the amenities, they must input their attendance to “sign-in” which will update in the database. The admin will also input frequently asked questions and policies.

Administrative Services Module: The user inputs the data into the app by checking in and checking out which will update in the database, therefore, notifying the admin on which rooms are currently occupied or vacant. With the guest data in the database, the admin will also be able to determine how busy the hotel is to accommodate with the amount of staff needed.

Profile information: After downloading the hotel app, the user will need to create a personal account by inputting a unique username, email, and password. The user will have access to all the hotel’s accomodations at their fingertips once they have booked and checked into a room.

Room Occupancy: The data will be taken from user and admin. When users check into their room(s) and when users reserve their room(s), those respective rooms will be marked as occupied while all other rooms remain available.

As the guest requests services from the app, such as a car service or room service, that data is collected and tracked for the admin to view. We will keep track of data that helps the admin determine ways to improve the hotel and make the guest experience better.

Plan of Work

Our goal is to create a mobile app that automates all hotel services so we can take advantage of the growing industry of self-service. The first step is to have our project on Github so that all members can access and update it. We will be using Android Studio to develop all the features of our app. The advantage of Github for version control is we can monitor all changes that are being made and with all the features in our app. Additionally, we can have multiple branches for group members to work on at the same time. Android Studio provides all the resources we need to build all the features and release our application.

We plan to have some the most important features done in the first couple weeks. Specifically, features like checking in, booking a room, and taking care of luggage. After the more main functions are created, we will focus our attention to other beneficial features for the app. We will make sure that our project has a solid foundation before improving other technicalities. Then we will continue to work on our assigned module.

To allow each subgroup to learn all aspects of the software development, we decided to split but the tasks based on the features of the app. That way, each subgroup can learn about the user interface, developing algorithms and working with databases. Below is the breakdown of how the features are split up amongst the group. Of course we are still one team and each subgroup will help others and keep everyone on track!

Each subgroup will be able to work on their modules independently. However, everyone will have access to the same database, allowing for a shared infrastructure. With the separation of modules, their will be vertical slicing.

Features	Subgroup
Check In Module (Guest UI focused)	Zain, Mohammed, Rameen
Guest Services Module (Guest UI focused)	Purna, Mandy, Shilp
Additional Amenities/Administrative Services Module (Admin UI Focused)	Mathew, Eric, Thomas, Keya

Product Ownership

App User Interface

- Simple interface for guests and admins to use and access the app
- Design implementation allowing users to access all the services of the hotel
- Send notifications of check in, check out, and key-pass information

Database Server

- We will be using MySQL for our database server
- The database will be used to store and verify guest/admin account information
- Also we will store all the data collected from users and present it for the admin UI

Below is a breakdown of all the skills of each team member. This information was used to determine which platform we will be making our service and how certain subgroups were made. We are making an android app because our strongest skill is Java. The work was also divided up based on skills and interests of each subgroup.

Team Member	Strengths and Expertise
Keya Patel	Java, C, HTML, Documentation
Zain Sayed	Java, C ,HTML, CSS
Mohammed Sapin	Java, Python, C++, HTML, CSS, JavaScript, PostgreSQL, Documentation
Purna Haque	Java, C++, Documentation
Nga Man (Mandy) Cheng	Java, .NET Web Dev, Documentation
Rameen Masood	Java, C++, Python, Documentation
Shilp Shah	Java, C, JavaScript, HTML/CSS, Documentation
Mathew Varghese	Java, SQL, Python, XML, C
Thomas Tran	Java, C++, Documentation
Eric Zhang	Java, C, HTML/CSS, Documentation